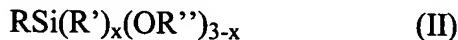


## CLAIMS

We claim:

1. A silica substrate treated with a polysiloxane, and an organosilane, wherein the organosilane is described by the formula:



wherein R is a long-chain hydrocarbon group having between about 8 to about 30 carbon atoms, and optionally contains organofunctional groups selected from the group consisting of vinyl, methacryl, amino, sulfur, and epoxy groups;

R' and R'' are independently selected from the group consisting of a methyl and an ethyl; and

X is either 0 or 1.

2. The silica substrate of claim 1, wherein the silica has a BET specific surface area of from about 50 to about 150 m<sup>2</sup>/g.

3. The silica substrate of claim 1, wherein the silica has an average particle size of from about 2 to about 10 microns.

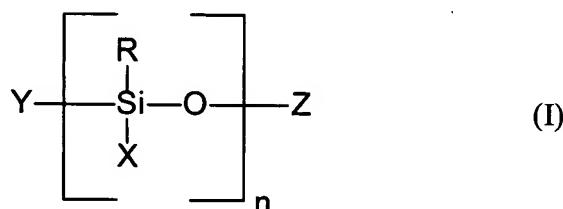
4. The silica substrate of claim 1, wherein the organosilane is a hexadecyltrimethoxysilane.

5. The silica substrate of claim 1, wherein the silica is selected from the group consisting of silica gel, metal silicate, precipitated silica, and fumed silica.

6. The silica substrate of claim 1, wherein the silica is selected from the group consisting of precipitated silica and fumed silica.

7. The silica substrate of claim 1, wherein the silica is precipitated silica.

8. The silica substrate of claim 1, wherein the polysiloxane has the formula:



wherein n is an integer greater than 1, preferably between about 30 to about 100; R, R' are independently selected organic groups, with from about 1 to about 20 carbon atoms;

X is selected from the group consisting of a hydrogen atom and an R' group;  
and

Y and Z are silicon-containing terminating end groups, preferably  
Y is -OSi(CH<sub>3</sub>)<sub>3</sub> and Z is -Si(CH<sub>3</sub>)<sub>3</sub>.

9. The silica substrate of claim 1, wherein the polysiloxane is polydimethylsiloxane.

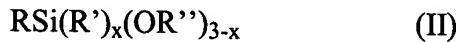
10. A method of preparing a treated silica substrate comprising the steps of:

- a) providing silica particles;
- b) contacting the silica particles with a polysiloxane; and
- c) contacting the silica particles with an organosilane.

11. The method of claim 10, wherein step c) occurs subsequently to step b).

12. The method of claim 10, wherein the silica particles are provided by precipitation.

13. The method of claim 10, wherein the organosilane is described by the formula:

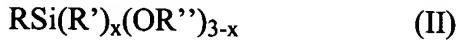


wherein R is a long-chain hydrocarbon group having between about 8 to about 30 carbon atoms, and optionally contains organofunctional groups selected from the group consisting of vinyl, methacryl, amino, sulfur, and epoxy groups;

R' and R'' are independently selected from the group consisting of a methyl and an ethyl; and

X is either 0 or 1.

14. A polymer composition comprising a silica substrate, the silica substrate treated with a polysiloxane, and an organosilane; wherein the organosilane described by the formula:



wherein R is a long-chain hydrocarbon group having between about 8 to about 30 carbon atoms, and optionally contains organofunctional groups selected from the group consisting of vinyl, methacryl, amino, sulfur, and epoxy groups;

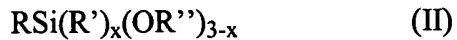
R' and R'' are independently selected from the group consisting of a methyl and an ethyl; and

X is either 0 or 1.

15. The polymer composition according to claim 14, further comprising a polymer selected from the group consisting of epoxy resin, polyurethanes, polyesters, silicones, and hydrocarbon oils.

16. The polymer composition according to claim 14, wherein the STI of the polymer composition is about 1.2 to about 100, preferably about 1.4 to about 5.

17. A composition comprising a silica substrate treated with a polysiloxane and an organosilane, wherein the organosilane described by the formula:



wherein R is a long-chain hydrocarbon group having between about 8 to about 30 carbon atoms, and optionally contains organofunctional groups selected from the group consisting of vinyl, methacryl, amino, sulfur, and epoxy groups;

R' and R'' are independently selected from the group consisting of a methyl and an ethyl; and

X is either 0 or 1.